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Koh

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(54) **ANGLE-ADJUSTABLE SUN CAP**
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A42B 1/06 (2006.01)

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CPC **A42B 1/064** (2013.01)

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A42B 3/223; A42B 2/326; A41D 20/00
USPC 2/10
See application file for complete search history.

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(57) **ABSTRACT**

An angle-adjustable sun cap includes a band unit, a visor unit attached to the band unit to be rotatable on the band unit, and a cap side coupling device that couples the band unit and the visor unit, in which the cap side coupling device includes an inner coupler and an outer coupler. With the cap side coupling device, the angle between the band unit and the visor unit may be adjusted and the band unit and the visor unit may be correctly fixed at the adjusted angle.

6 Claims, 4 Drawing Sheets

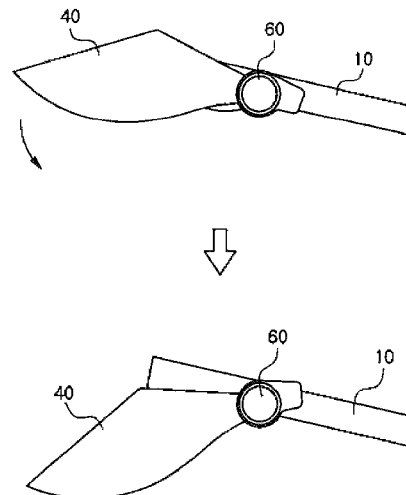
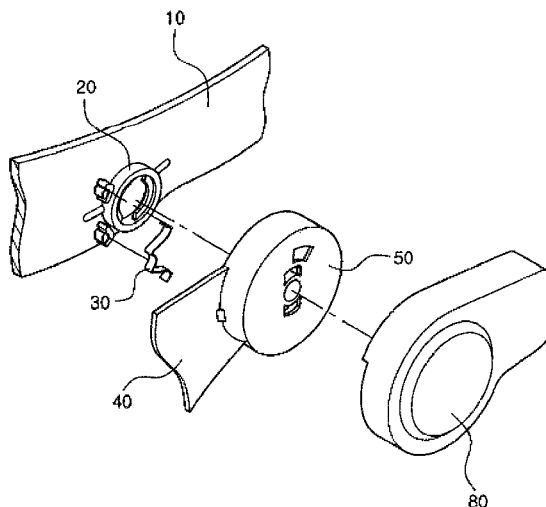


FIG. 1

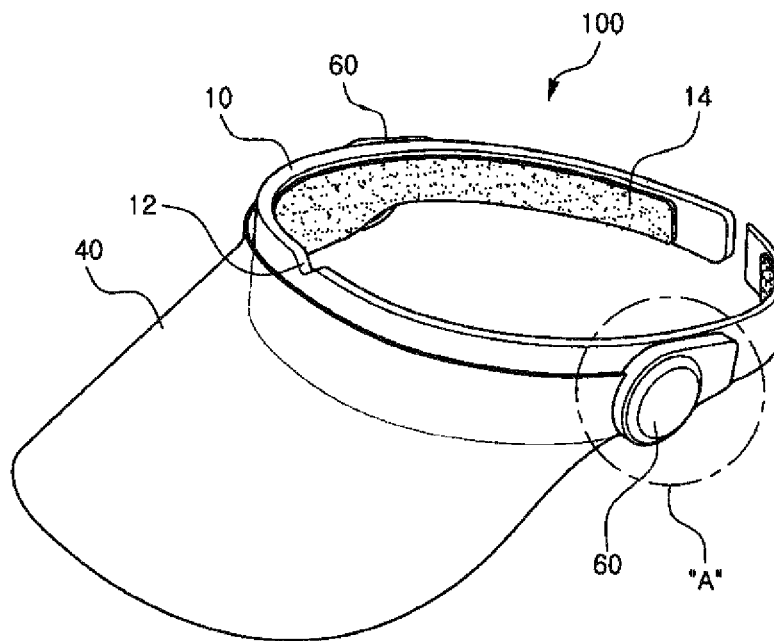


FIG. 2

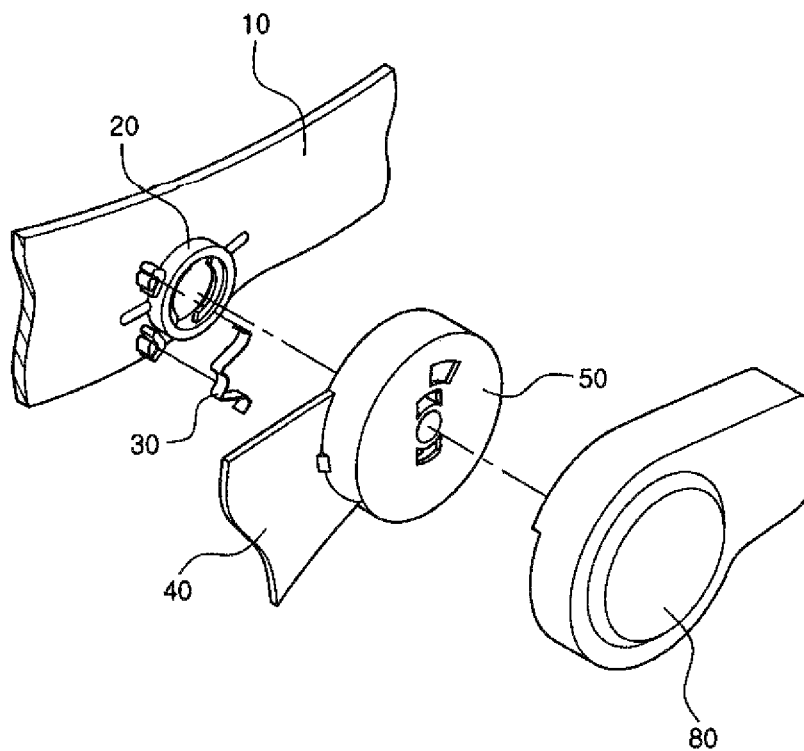


FIG. 3

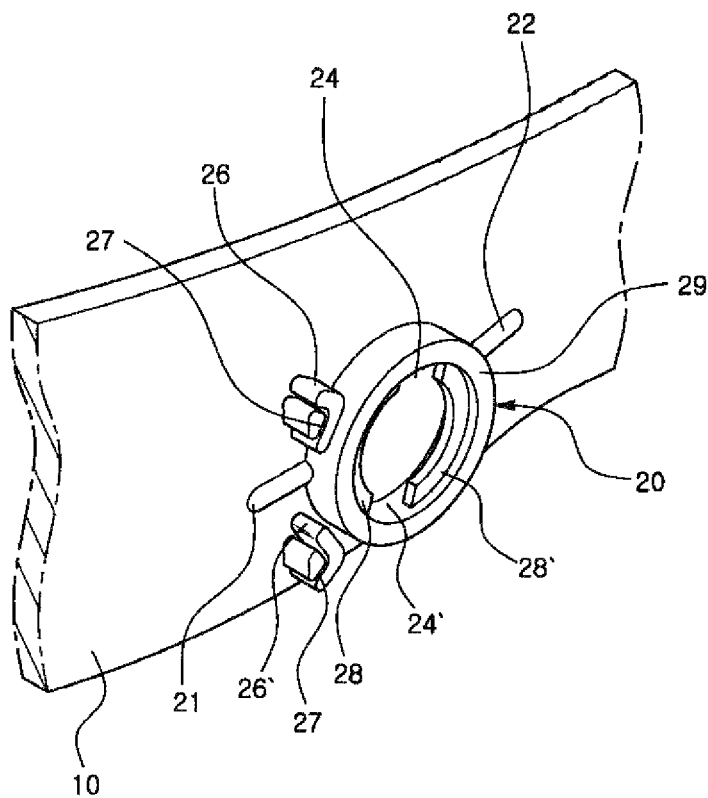


FIG. 4

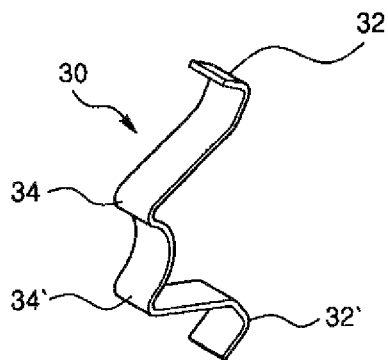


FIG. 5

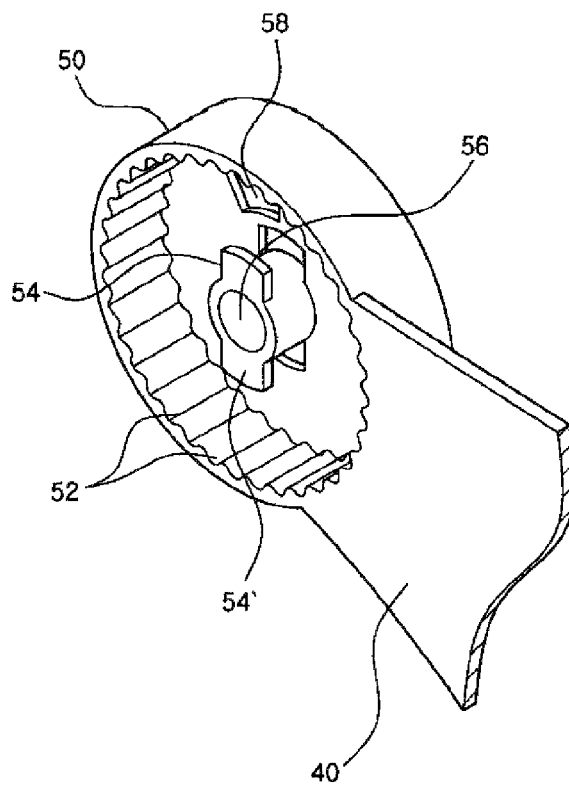


FIG. 6

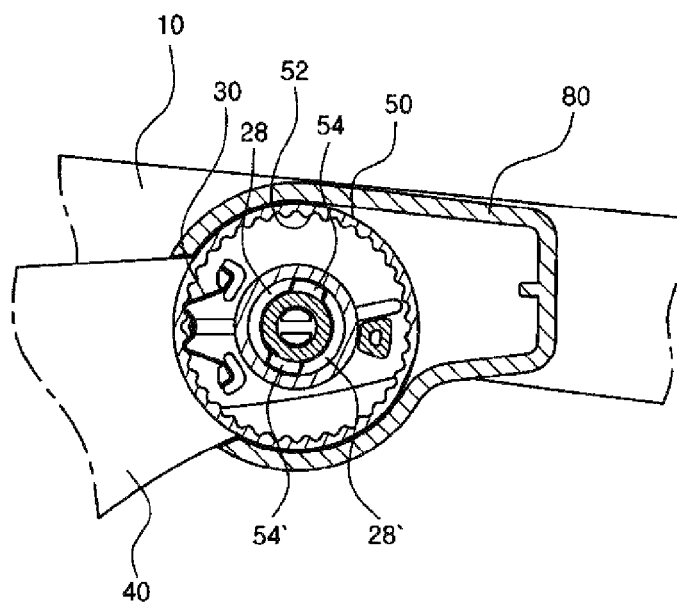


FIG. 7

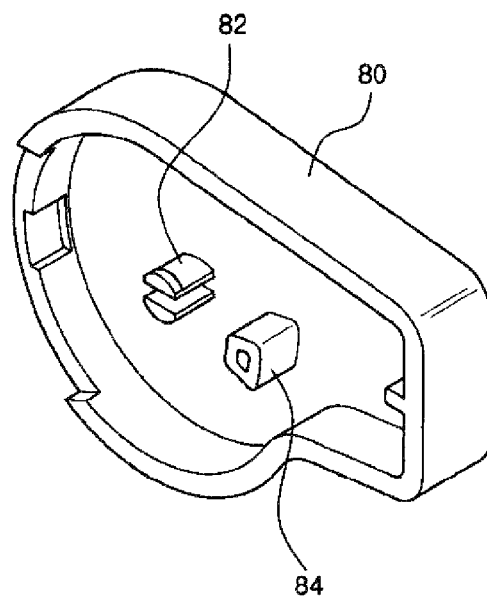
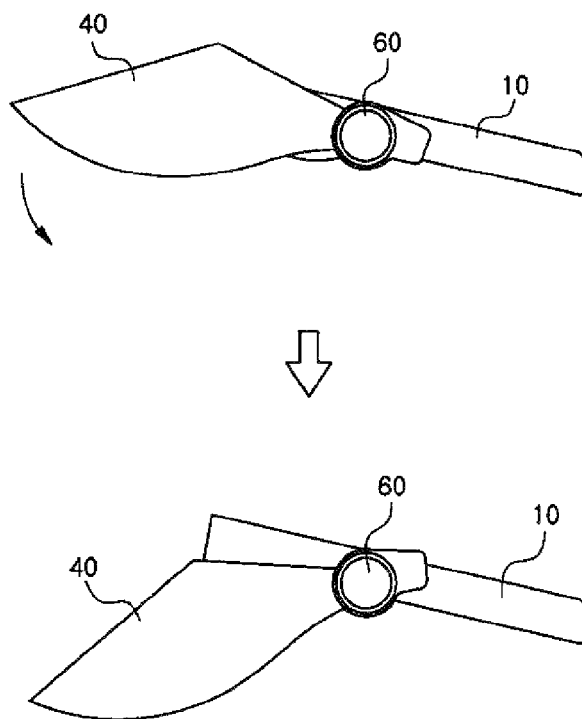


FIG. 8



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ANGLE-ADJUSTABLE SUN CAP**BACKGROUND OF THE INVENTION****1. Field of the Invention**

The present invention relates to a sun cap, and more particularly, to a cap side coupling device that couples a band unit and a visor unit of a sun cap and adjusts an angle between the band unit and the visor unit.

2. Description of the Prior Art

Conventional sun caps may be classified into a fixed type sun cap in which a band unit and a visor unit are fixed to each other and an angle-adjustable type sun cap in which the angle of a visor unit coupled to a band unit is adjustable. An example of the fixed type sun cap is disclosed in Korean Patent No 10-1181720 registered in the name of the present applicant and entitled "Sun Cap with Gradation Visor". The patent discloses a sun cap that comprises: a visor which is coated with a color such that the color is gradated to fade as approaching outside from a wearer's forehead; a head support integrally formed with the visor to be fixed to the forehead; a pair of fixing legs hinged to the opposite ends of the head support to be folded; and hinge means configured to couple the head support and the fixing legs. Since the material of the visor is identical to that of glasses, the strength of the visor may be improved. In addition, since the visor is coated with a color such that the color is gradated to fade as approaching outside from the wearer's forehead, the visor may efficiently shield ultraviolet rays while securing a clear view. However, in the granted invention, since the band unit and the visor are fixed to each other, it is impossible to adjust the angle of the visor even when the sunlight is strong. As a result, there is a problem in that the wearer's eyes may not be protected.

In addition, an example of the angle-adjustable type sun cap is disclosed in Korean Utility Model Registration No. 20-0426424 entitled, "Sun Cap". The Utility Model discloses a sun cap in which, when a visor of the sun cap covers a user's eyes, a transparent visor portion of a polycarbonate film is disposed at a portion corresponding to the user's field of vision and at least one opaque visor portion which is thinner than the transparent visor portion is disposed at the remaining portion. The transparent visor portion and the opaque visor portion are connected with each other through backstitching so as to form the visor. The invention is configured such that the angle of the transparent visor portion may be adjusted about a hinge axis. However, since the transparent visor portion cannot be fixed, there is a problem in that the transparent visor portion may slip down as time goes on.

SUMMARY OF THE INVENTION

Accordingly, the present invention has been made to solve the above-mentioned problems occurring in the prior art, and an aspect of the present invention is to provide an angle-adjustable sub cap including a side coupling device configured to adjust and fix an angle between a band unit and a visor unit in such a manner that the angle of the visor unit coupled to a band unit may be adjusted and the band unit and the visor unit may be correctly fixed at the adjusted angle. The side coupling device includes an outer coupler and an inner coupler.

In order to accomplish this object, there is provided an angle-adjustable sun cap including: a band unit; a visor unit attached to the band unit to be rotatable on the band unit; and a side coupling device that couples the band unit and the visor unit. The side coupling device includes an inner coupler provided with one or more insertion grooves and an outer con-

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necter provided with one or more fixing protrusions. The outer coupler is integrally formed with the visor unit and the inner coupler is integrally formed with the band unit, and the outer connector is assembled with the inner connector in such a manner that the outer connector may be rotated or fixed on the inner connector so as to rotate the visor unit on the band unit or to fix the visor unit on the band unit.

The inner coupler may include one or more latch fixing portions each of which is provided with a fixing groove. In addition, the inner coupler may include a fixing latch of which the opposite ends are fixed to the fixing grooves, respectively.

The fixing latch of the inner coupler may be configured by an M-shaped leaf spring.

The fixing protrusions of the outer coupler are rotatably inserted into the insertion grooves, respectively, so as to allow the outer coupler to be rotated on the inner coupler so that the visor unit may be rotated on the band unit.

The outer coupler may be formed in a circular shape and includes a toothed fixing portion formed on an inner circumference of the outer coupler. When the visor unit is rotated, the toothed fixing portion is rotated on the fixing latch and when the visor unit is stopped, the fixing latch is fixedly engaged with teeth of the toothed fixing portion.

The sun cap may further include a first protrusion and a second protrusion which are formed inside a side coupling device cover and fitted to a first hole and a second hole formed inside the outer coupler of the visor unit.

An inner member formed by a sponge covered with a cloth may be attached to an inner surface of the band unit.

The visor unit may be formed to be transparent or have a color selected from various colors.

The band unit may be formed with a V-groove so as to allow the inner member to be quickly, conveniently and correctly attached as well as so as to provide a sense of beauty.

As described above, the angle-adjustable sun cap according to the present invention includes a band unit, a visor unit attached to the band unit to be rotatable on the band unit; and a side coupling device that couples the band unit and the visor unit, in which the side coupling device includes an inner coupler and an outer coupler. With the side coupling device, the angle between the band unit and the visor unit may be adjusted and the band unit and the visor unit may be correctly fixed at the adjusted angle.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other objects, features and advantages of the present invention will be more apparent from the following detailed description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view illustrating a sun cap according to an exemplary embodiment of the present invention;

FIG. 2 is an exploded perspective view illustrating a side coupling device of the sun cap illustrated in FIG. 1;

FIG. 3 is a perspective view illustrating an inner coupler of the side coupling device illustrated in FIG. 2;

FIG. 4 is a perspective view illustrating a fixing latch of the side coupling device illustrated in FIG. 2;

FIG. 5 is a perspective view illustrating an outer coupler of the side coupling device illustrated in FIG. 2;

FIG. 6 is a cross-sectional view illustrating the side coupling device of FIG. 2 in the assembled state;

FIG. 7 is a perspective view illustrating a side coupling device cover according to an exemplary embodiment of the present invention; and

FIG. 8 is a schematic view illustrating the operation of the sun cap according to the exemplary embodiment of the present invention.

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS

The present invention provides an angle-adjustable sun cap including: a band unit **10**; a visor unit **40** attached to the band unit **10** to be rotatable on the band unit; and a side coupling device **60** that couples the band unit **10** and the visor unit **40**. The side coupling device **60** includes an inner coupler **20** provided with one or more insertion grooves **24** and **24'** and an outer coupler **50** provided with one or more fixing protrusions **54** and **54'**. The outer coupler **50** is integrally formed with the visor unit **40** and the inner coupler **20** is integrally formed with the band unit **10**. The outer coupler **50** is assembled with the inner coupler **20** in such a manner that the outer coupler **50** may be rotated or fixed on the inner coupler **20** so as to rotate the visor unit on the band unit or to fix the visor unit on the band unit.

Hereinafter, exemplary embodiments of the angle-adjustable sun cap according to the present invention will be described in detail with reference to accompanying drawings.

FIG. 1 is a perspective view illustrating a sun cap according to an exemplary embodiment of the present invention. As illustrated in FIG. 1, the sun cap **100** according to the present exemplary embodiment includes a band unit **10** held on a wearer's head, a visor unit **40** that shields sun light (ultraviolet rays), and a side coupling device **60** that couples the band unit **10** and the visor unit **40**.

In FIG. 1, the side coupling device **60** is illustrated in a dot-and-dash line circle A.

An inner member **14** formed by a sponge covered with a cloth may be further attached to the inner surface of the band unit **10**. The visor unit **40** may be formed to be transparent or have a color selected from various colors.

The band unit **10** may be further formed with a V-groove so as to allow the inner member **14** to be quickly, conveniently and correctly attached as well as so as to provide a sense of beauty.

FIG. 2 is an exploded perspective view illustrating a side coupling device of the sun cap illustrated in FIG. 1. The features of the present exemplary embodiment include the band unit **10**, the visor unit **40** and the side coupling device **60**.

As illustrated in FIG. 2, the side coupling device **60** includes an inner coupler **20** and an outer coupler **50** in which the inner coupler **20** includes a latch fixing portion **30**.

The outer coupler **50** is integrally formed with the visor unit **40** and the inner coupler **20** is integrally formed with the band unit **10**. One of the most important features of the present invention is that the outer coupler **50** is integrally formed with the visor unit **40** and the inner coupler **20** is integrally formed with the band unit **10**.

When outer coupler **50** is integrally formed with the visor unit **40** and the inner coupler **20** is integrally formed with the band unit **10**, no separate additional coupling device is required so as to couple the visor unit and the band unit.

As the coupler is formed by a portion of the visor unit or a portion of the band unit as described above, the manufacturing process may be simplified and quickly and economically performed and a final product may be slimmed.

However, it is important to use a high-strength material in order to integrally produce principal elements in a product as described above.

As for the sun cap according to the present invention, polycarbonate may be preferably used as a material.

Polycarbonate has an impact resistance which is 150 or more times of that of a tempered glass and is excellent in heat-resistance, flexibility and machinability as well as the impact resistance.

FIG. 3 is a perspective view illustrating the inner coupler of the side coupling device illustrated in FIG. 2.

The inner coupler **20** is integrally formed with the band unit **10**.

The inner coupler **20** has a circular portion **29** which is formed with insertion grooves **24** and **24'** and inner walls **28** and **28'** therein, latch fixing portions **26**, **26'** provided in the outside of the circular portion **29** formed with fixing grooves **27** and **27'** in the outside of the circular portion **29**, an abutment **21**, and a stopper.

The abutment **21** serves to hold a latch fixing portion **30** at the bottom side thereof so as to assure that the latch fixing portion **30** and a toothed fixing portion **52** may be securely engaged with each other. The stopper **22** is provided so as to allow the outer coupler to be rotated to a predetermined limit (until the outer coupler comes into contact with a second protrusion of a side coupling device cover (see FIG. 7)) when the outer coupler is rotated on the inner coupler (see FIGS. 3 and 6).

FIG. 4 is a perspective view illustrating a fixing latch according to an exemplary embodiment of the present invention.

The inner coupler **20** includes a fixing latch **30** which may be formed of a metal in an "M" shape. For example, a leaf spring may be used as the fixing latch **30**. The opposite ends **32** and **32'** of the fixing latch are fixed to the fixing grooves **27** and **27'** of the latch fixing portions **26** and **26'**.

FIG. 5 is a perspective view illustrating an outer coupler according to an exemplary embodiment of the present invention.

The outer coupler **50** is integrally formed with the visor unit **40**.

The outer coupler **50** is formed in a circular shape and a toothed fixing portion **52**, fixing protrusions **54** and **54'**, a first hole **56** and a second hole **58** are formed inside the outer coupler **50**.

The outer coupler **50** is assembled with the inner coupler **20** and the outer coupler is configured to be rotated or fixed on the inner coupler. Thus, the visor unit may be rotated or fixed on the band unit.

The fixing protrusions **54** and **54'** of the outer coupler **50** are rotatably inserted into the insertion grooves **24** and **24'** of the inner coupler **20** so that the outer coupler may be rotated on the inner coupler. Thus, the visor unit may be rotated on the band unit.

The outer coupler **50** is formed in a circular shape and the toothed fixing portion **52** is formed on the inner circumference of the outer coupler **50**. When the visor unit **40** is rotated, the toothed fixing portion **52** is rotated on the fixing latch **30** and when the visor unit **40** is stopped, the top portions **34** and **34'** of the fixing latch **30** are fixedly engaged with the teeth of the toothed fixing portion **52**.

As described above, the fixing latch **30** is formed of a metal in an M shape and a leaf spring may be used as for the fixing latch **30**. Using the elastic force of the leaf spring which is contracted when the visor unit **40** is rotated and expanded when the visor unit **40** is stopped, the visor unit **40** may be rotated or stopped on the band unit **10**.

FIG. 6 is a cross-sectional view illustrating the side coupling device in the assembled state.

As illustrated in FIG. 6, the fixing latch **30** is engaged with the toothed fixing portion **52** when the outer coupler **50** is

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assembled to the inner coupler **20**, and a side coupling device cover **80** is provided on the outside of the outer coupler **50**.

FIG. **7** is a perspective view illustrating the side coupling device cover according to the exemplary embodiment of the present invention. The side coupling device cover **80** is formed with a first protrusion **82** and a second protrusion **84**.

The first protrusion **82** and the second protrusion **84** are engaged with a first hole **56** and a second hole **58** formed inside the outer coupler **50** of the visor unit **40**.

FIG. **8** is a schematic view illustrating the operation of the sun cap according to an exemplary embodiment of the present invention.

When a downward force is applied to the visor unit **40** which is horizontally positioned in relation to the band unit **10**, the outer coupler **50** is rotated on the inner coupler **20** as illustrated in the upper drawing in FIG. **8**) and thus, the visor unit **40** is rotated as illustrated in the lower drawing in FIG. **8**.

Although the present invention has been described with reference to several exemplary embodiments and the accompanying drawings, the terms or words used in the detailed description and claims shall be interpreted to correspond to the technical idea of the present invention in meaning and concept rather than being limitatively interpreted as typical or dictionary meaning. Accordingly, it shall be noted that since the exemplary embodiments described in the detailed description and the configurations illustrated in the drawings merely exemplify the present invention, various equivalents and modified examples may be made without departing from the scope of the present invention which is defined by the accompanying claims and all the equivalents and the modified examples belong to the scope of the present invention.

Although an exemplary embodiment of the present invention has been described for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

What is claimed is:

1. An angle-adjustable sun cap comprising:

a band unit;

a visor unit attached to the band unit to be rotatable on the band unit; and

a side coupling device that couples the band unit and the visor unit,

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wherein the side coupling device includes an inner coupler provided with one or more insertion grooves and an outer coupler provided with one or more fixing protrusions, the one or more fixing protrusions being inserted into the one or more insertion grooves,

wherein the outer coupler is integrally formed with the visor unit and the inner coupler is integrally formed with the band unit,

wherein the outer coupler is assembled with the inner coupler in such a manner that the outer coupler may be rotated or fixed on the inner coupler so as to rotate the visor unit on the band unit or fix the visor unit on the band unit,

wherein the inner coupler comprises a latch fixing portion having a fixing groove therein, and an M-shaped leaf spring fixed to the latch fixing portion, and

wherein the outer coupler has an annular shape, and a toothed fixing portion is provided on an inner circumferential surface of the annular outer coupler so that when the visor unit is rotated, the toothed fixing portion is rotated on the M-shaped leaf spring, and when the visor unit is stopped, the M-shaped leaf spring is locked between teeth of the toothed fixing portion.

2. The angle-adjustable sun cap of claim 1, further comprising a first protrusion and a second protrusion which are formed inside a side coupling device cover and fitted to a first hole and a second hole formed inside the outer coupler of the visor unit.

3. The angle-adjustable sun cap of claim 1, wherein the visor unit, the outer coupler, the band unit, and the inner coupler are made of polycarbonate.

4. The angle-adjustable sun cap of claim 1, an inner member formed by a sponge covered with a cloth is attached to an inner surface of the band unit.

5. The angle-adjustable sun cap of claim 4, wherein the band unit is formed with a V-groove so as to allow the inner member to be quickly, conveniently and correctly attached as well as so as to provide a sense of beauty.

6. The angle-adjustable sun cap of claim 1, wherein the visor unit is formed to be transparent or have a color selected from various colors.

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